Utah Emergency Department Encounter Data
Emergency Department Annual Report (EDAR-2001)

Utah Emergency Department Utilization and Charges Profile Statewide Summary 2001

Released by

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Section I - Introduction

The Hospital Emergency Department Annual Report 2001 (ED-AR 2001) contains information about patient encounters with Utah hospital emergency departments. The Report is released by the Bureau of Emergency Medical Services and the Office of Health Care Statistics, Utah Department of Health.

The Report contains hospital-level all-payer data and will serve as the basis for smaller reports on specific topics. The 2001 emergency department data will be used to support evaluation and monitoring of Emergency Department (ED) utilization in Utah.

Background

Encounters of patients with hospital EDs are a significant segment in the continuum of emergency medical care. ED encounter data provide a measure of outcomes of pre-hospital emergency services as well as a starting point for evaluating in-hospital trauma care and subsequent rehabilitation services. Consumers, employers, payers, policy-makers, and providers can use encounter data to better understand the health care needs of Utah citizens, patterns of ED utilization, and the burden of injury and illness throughout the state.

The Utah Hospital Emergency Department 2001 Annual Report is the sixth in the series of statewide ED utilization reports pioneered by the Utah Department of Health in 1996[1]. The reports contain data about outpatient ED visits, that is, patient encounters that did not result in a hospital admission, as well as data that describe inpatient admission, those leading to a hospital admission. The reports provide the only available population-based description of ED utilization in Utah. Results reported in the 2001 emergency department summary of the National Hospital Ambulatory Medical Care Survey (NHAMCS)[2] are used in this report as a basis for comparison with Utah data. Only a few other states have developed statewide ED encounter reporting systems, and there is no federal repository of such data. However, AHRQ and the HCUP project do collect state level data, and make it available through the HCUP central distributor.

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[1] Bureau of Emergency Medical Services and Center for Health Data Analysis. (1998). *Utah Emergency Department Utilization and Charges Profile Statewide Summary* (1996 Utah Emergency Department Encounter Data Emergency Department Annual Report EDAR-1:96). Salt Lake City, Utah: Utah Department of Health.

[2] McCaig, LF, Burt, CW. National Hospital Ambulatory Medical Care Survey: 2003 Emergency Department Summary. Advance data from vital and health statistics: no. 335. Hyattsville, MD: National Center for Health Statistics, 2004. http://www.cdc.gov/nchs/data/ad/ad335.pdf

The 2001 Utah database consists of 672,879 records of ED encounters at 41 acute care hospitals in Utah. The data were compiled, edited, and analyzed according to the methodology[3] described in appendices to the Report.

Organization and Scope of the Report
The Report is organized into seven sections.

Section I, Introduction, includes a brief background of the ED annual report series.

Section II, Summary of Findings, consists of summary highlights and charts describing each of the following data sources:

- ED Encounter data, which includes the combined data on all ED visits
- ED Outpatient data, which includes data about patients who visited a hospital ED and had no subsequent admission to the hospital
- ED Inpatient data, which includes data about patients whose visit to a hospital ED was followed by an inpatient hospital stay.

Section III, Data, presents information about data collection, submission, and editing routines, and a discussion of privacy, confidentiality, and access to data.

Section IV, Technical Notes and Limitations, presents information useful for interpreting the data, limitations of the data, and references.

Section V, Appendices, contains table descriptions, the electronic resource documents, and characteristics of reporting hospitals.

Section VI, Tables, contains tabulated descriptions of ED encounters, ED Outpatient visits, and ED inpatient admission.

Section VII, Index, contains headings, page numbers, and links to hospital-specific tables in each part of the Tables section.

[3] Several methodologies (e.g., outlier definition, case mix indexing, peer grouping) adopted for the Report were originally developed for analysis of hospital inpatient data by the Office of Health Care Statistics.

Section II – Summary of Findings

ED Encounters

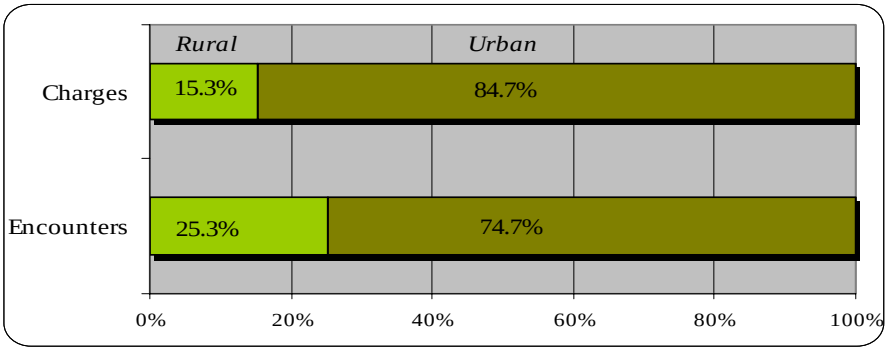
During 2001, there were 672,879 encounters with Utah hospital EDs, about 29.3 encounters per 100 persons in the state. The encounter rate was lower than the national ED encounter rate of 38.4 per 100 persons in 2001[4], and higher than the Utah rate in 2000 (28.3 per 100 person), 1999 (27.6 per 100 person), 1998 (26.7 per 100 persons), 1997 (27.3 per 100 persons), and 1996 (25.1 per 100 persons). While the Utah encounter rate has increased only 4.2 per 100 persons since 1996, the total number of visits has shown a 33.8% increase, from 502,818 in 1996 to 672,879 in 2001. This suggests an increased volume of visits per hospital, because the number of hospital EDs has not changed since 1996.

The total charge[5] for the 672,879 visits in 2001 was $1,040,413,483 (see Table 1). Of the total encounters, 601,079 (89.3%) required no subsequent admission to the hospital, while 71,800 (10.7%) did require a subsequent admission. Total charge for the outpatient visits was $233,672,638 and for the inpatient admission was $806,740,841.

Geographic Region

There were 502,379 visits (74.7% of total) to urban hospitals and 170,500 visits (25.3%) to rural hospitals. As was the case in previous years (1999, 2000) urban hospital ED visits outnumbered rural ED visits about three to one. However, there was a greater difference in charges, with urban hospital charges totaling $880,738,111 (84.7%) and rural hospital charges totaling $159,675,372 (15.3%) resulting in a five ½ to one ratio. Figure 1 illustrates these data.

Figure 1. Percent Distribution of ED Encounters by Region and Charges: Utah, 2001



[4] McCaig, LF, Burt, CW. National Hospital Ambulatory Medical Care Survey: 2003 Emergency Department Summary. Advance data from vital and health statistics: no. 335. Hyattsville, MD: National Center for Health Statistics, 2003.

[5] Total charges cited in the Report exclude professional fees.

Patient Characteristics

As in prior years, more women (52.5%) than men (47.5%) had ED encounters in 2001 (Figure 2). The distribution of ED encounters by age group, compared to 2001 Utah population by age group, is shown in Figure 3. Persons aged 1 to 4 years, 20 to 24 years, and 25 to 29 had disproportionately higher numbers of visits than those in other age groups. Persons aged less than one year, 80 to 84 years, and 85 years and over had a disproportionately higher number of ED encounters per 100 person (70.7, 57.4, and 54.9 respectively) than age groups in the population in 2001. Please see Table 2 for more information.

Figure 2. Percent Distribution of ED Encounters by Gender: Utah, 2001

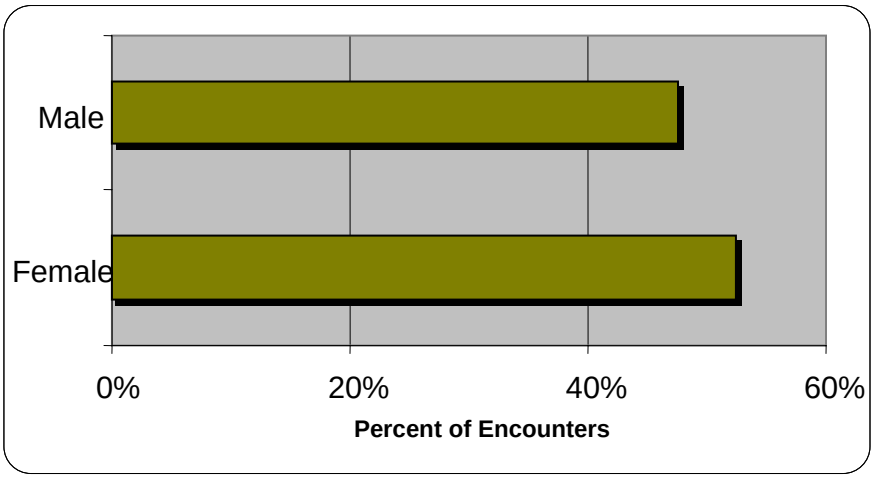
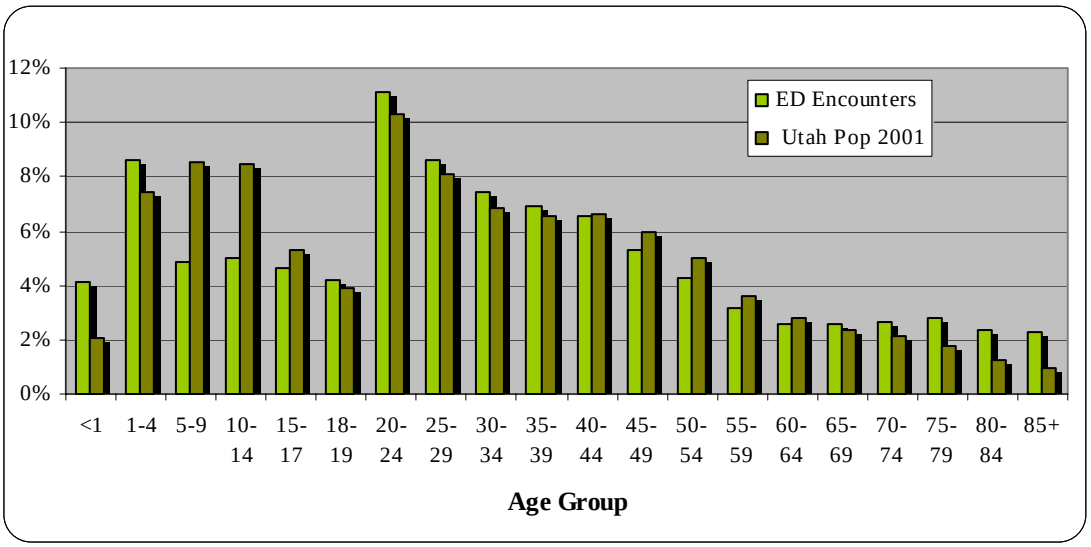


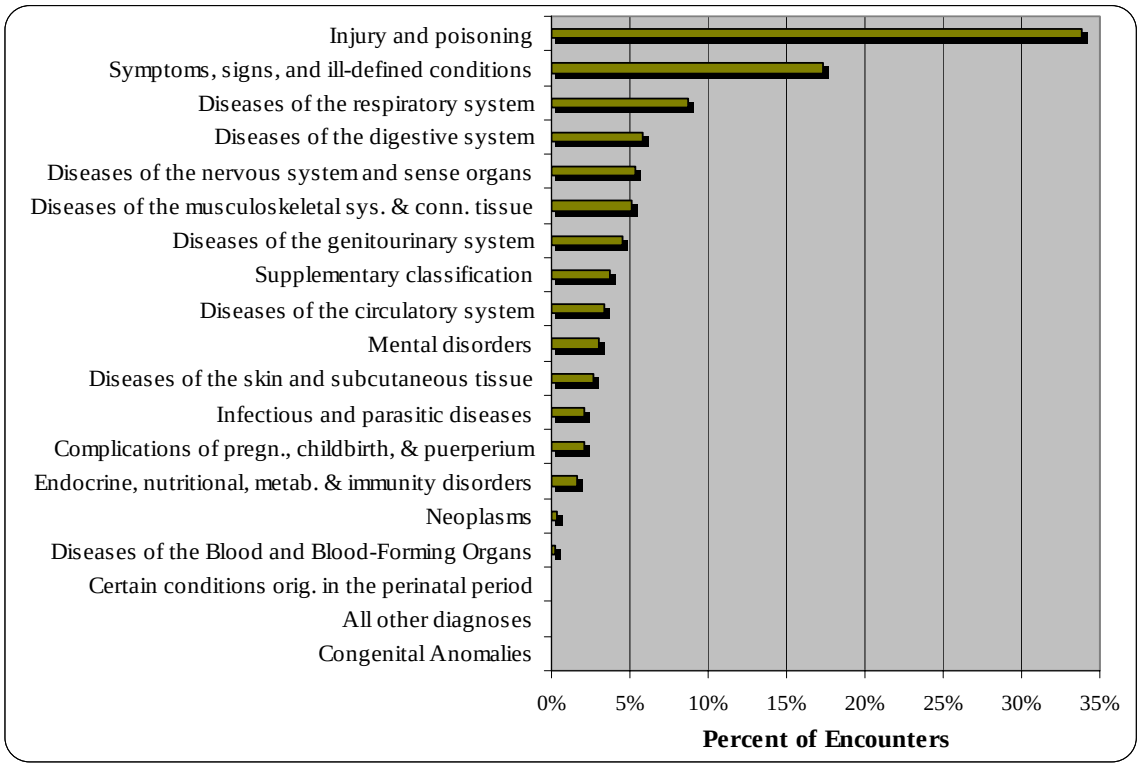
Figure 3. Percent Distribution of ED Encounters by Patient's Age Group Compared to Population by Age Group: Utah, 2001



Encounter Characteristics

Major disease category. Injury and poisoning represented the most frequent disease category (33.8%) of ED encounters in 2001, and resulted in total charges of $242,418,607. Encounters due to symptoms, signs, and ill-defined conditions (17.3%) and diseases of the respiratory system (8.8%) were the second and third most frequent causes, respectively. Statewide average charges[6] per encounter were highest for diseases of neoplasms ($12,221), congenital anomalies ($8,388), and of diseases of the circulatory system ($7,356). Please see Figure 4 below and Table 3 for additional information.

Figure 4. Percent Distribution of ED Encounters by Major Disease Category: Utah, 2001

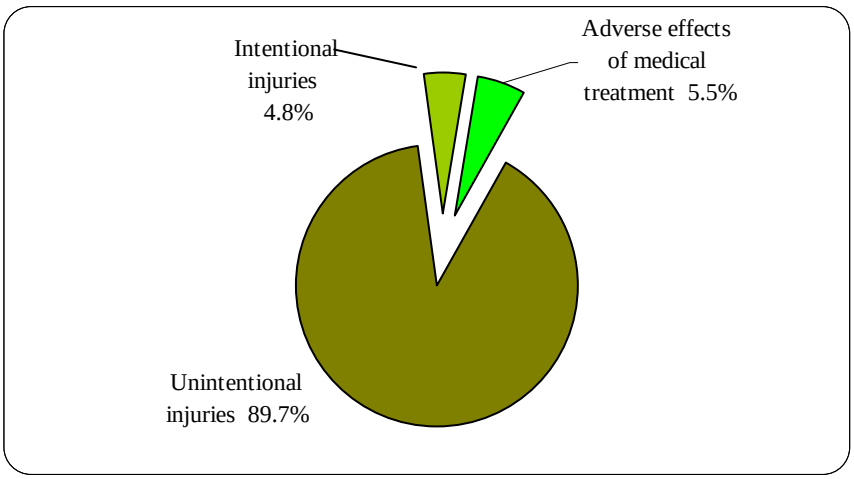


[6] Outliers were excluded in the calculation of average charges.

Causes of injury and poisoning. In 2001, there were 245,387 ED encounters were classified as injury and poisoning, a 4.4% increase over the 235,009 encounters for injury and poisoning in 2000. ED encounters due to injury and poisoning accounted for 36.5% of all ED encounters in 2001, down slightly from 37.2% in 2000, and higher than 27.0% reported nationally in 2001[7]. Charges for encounters due to injury and poisoning totaled $265,275,217, or 25.5% of total charges for all ED encounters.

Unintentional injuries represented 89.7% of encounters due to injury and poisoning, with charges totaling $186,743,442. Intentional injuries accounted for 4.8% of all injury and poisoning encounters and $16,184,163 in charges. There were 13,436 encounters in 2001 coded as visits due to adverse effects of medical treatment, or 5.5% of all injury and poisoning encounters, which resulted in charges totaling $60,594,916. The average statewide charge per encounter for unintentional injuries, intentional injuries, and adverse effects of medical treatment were $746, $1,267, and $3,864, respectively. Please see Figure 5 and Table 4 for additional information.

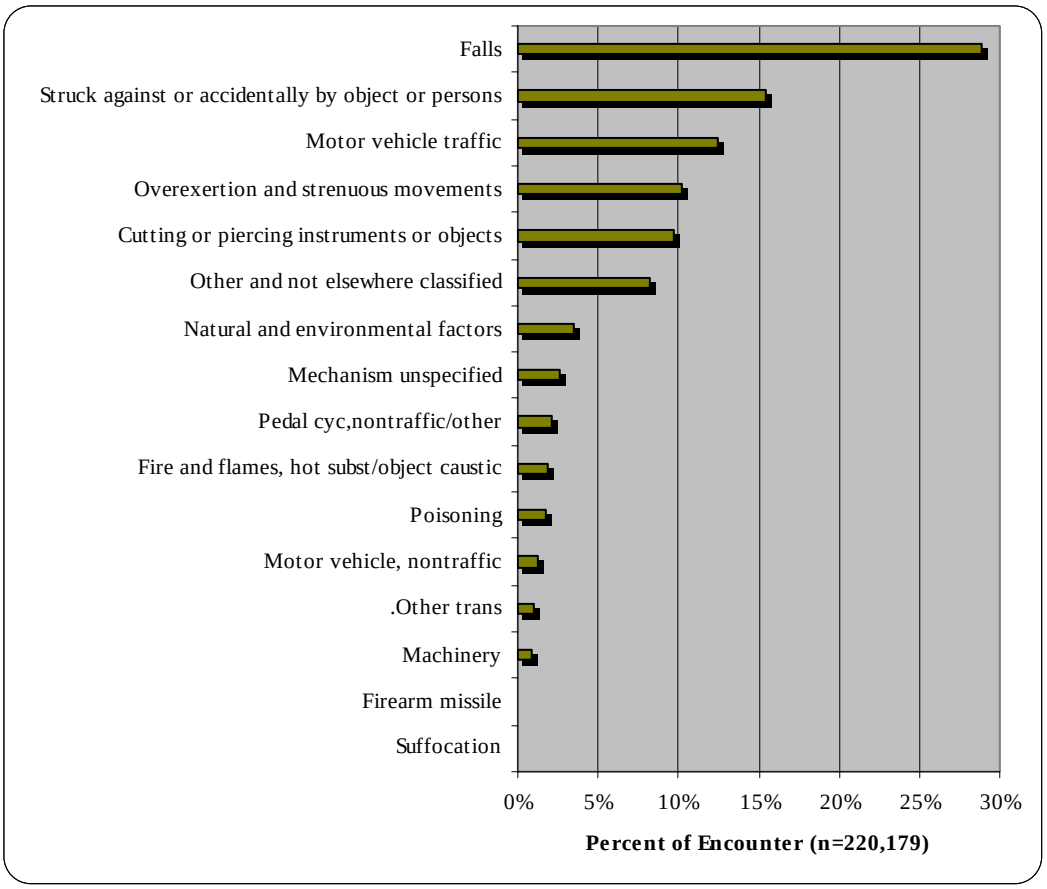
Figure 5. Percent Distribution of ED Encounters by Intent and Mechanism of Injury: Utah, 2001



[7] Several methodologies (e.g., outlier definition, case mix indexing, peer grouping) adopted for the Report were originally developed for analysis of hospital inpatient data by the Office of Health Care Statistics.

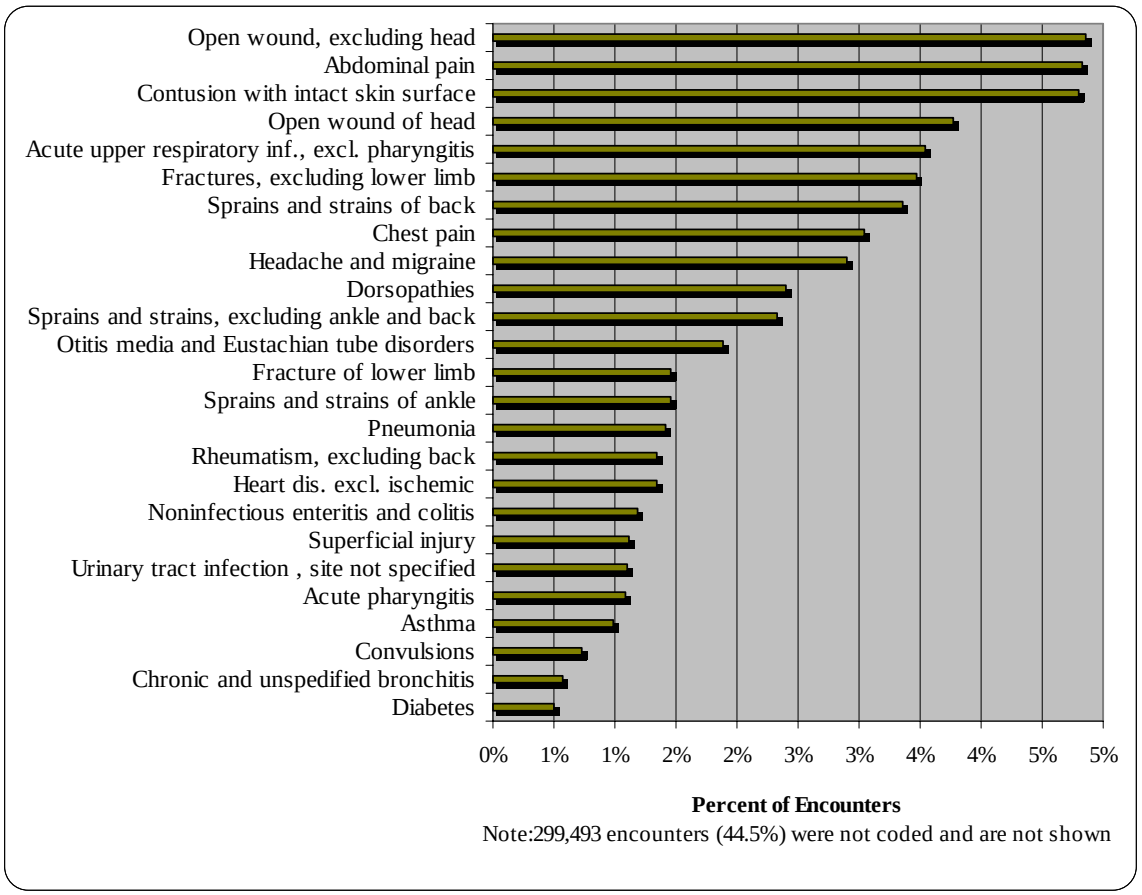
Among ED encounters due to unintentional injury, the most frequent causes of injury were falls (28.8%), striking against or struck accidentally by objects or persons (15.4%), and traffic-related motor vehicle injuries (12.5%). The percent distribution of ED encounters due to unintentional injury is shown in Figure 6. Table 4 presents additional information.

Figure 6. Percent Distribution of ED Encounters by Unintentional Injury: Utah, 2001



Principal diagnosis. The percent distribution of ED encounters by the 25 highest-volume principal diagnosis groups is shown in Figure 7 and Table 5. The top five principal diagnosis groups and related total charges were open wound, excluding head (4.9%, $10,947,831), abdominal pain (4.8%, $24,805,000), contusion with intact skin surface (4.8%, $11,663,290), open wounds of head (3.8%, $8,603,865), and acute upper respiratory infection excluding pharyngitis (3.5%, $10,605,288). In terms of statewide average cost per ED encounter, the top five principal diagnosis groups were heart disease, excluding ischemic heart disease ($5,558), pneumonia ($4,205) fractures of lower limb ($4,163), diabetes ($3,212), and chronic and unspecified bronchitis ($1,821).

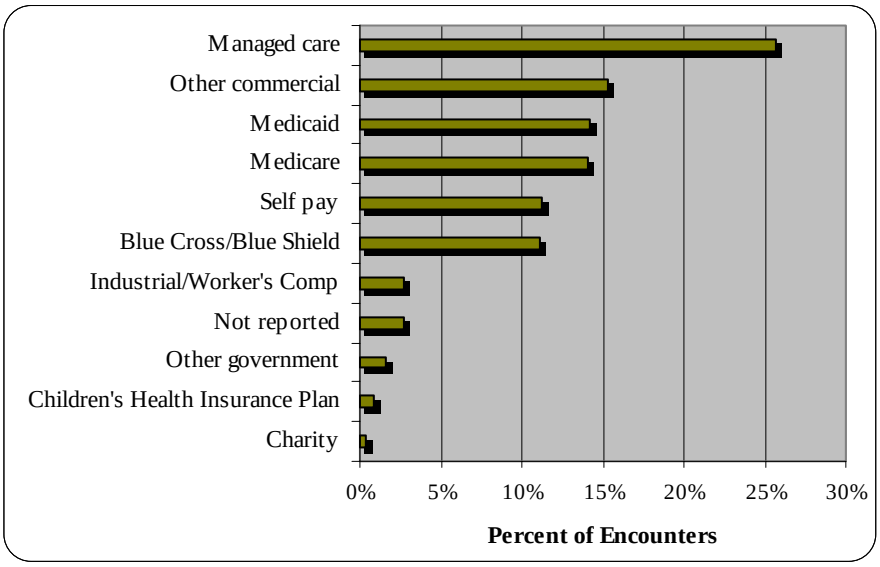
Figure 7. Percent Distribution of ED Encounters by Principal Diagnosis Group: Utah, 2001



Note:299,493 encounters (44.5%) were not coded and are not shown

Primary payers. The primary source of payment for ED encounters in 2001 was managed care, which paid for 25.7% of all encounters, compared to 27.7% in 2000. Encounters paid by Medicare, Medicaid, and other government sources inclined in 2001 to 29.8% of all encounters, compared to 28.9% in 2000. Encounters paid by Blue Cross/Blue Shield and other commercial insurers rose slightly from 26.3% in 2000 to 26.5% in 2001. Encounters with self-pay as payment source inclined slightly from 11.0% in 2000 to 11.2% in 2001. Please see Figure 8 and Table 2 for additional information.

Figure 8. Percent Distribution of ED Encounters by Primary Payer, Utah, 2001



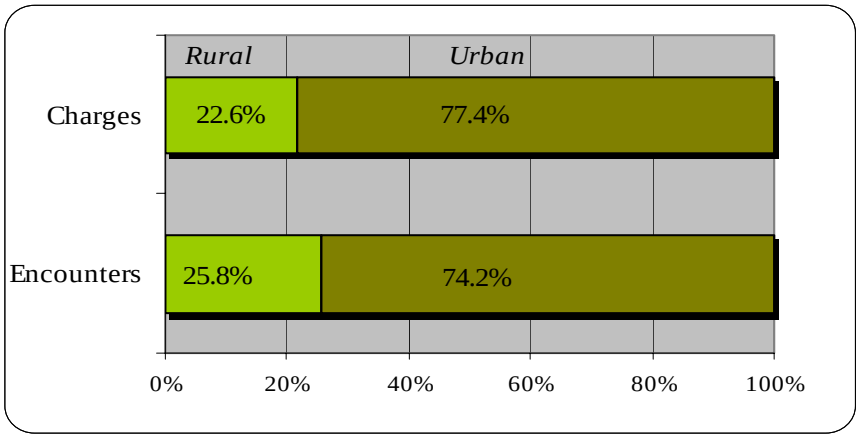
ED Outpatient Visits

An ED outpatient visit is one in which the patient is treated and released, and there is no immediate admission to the hospital. In 2001, there were 601,079 ED outpatient visits, which represented 89.3% of all ED encounters and about 26.2 visits per 100 persons. Charges for ED outpatient visits totaled $233,672,640, or 22.5% of charges for all ED encounters. Please see Table 1 for additional information.

Geographic Region

There were 445,845 outpatient visits in urban and 155,234 in rural hospital EDs, which accounted for total charges of $180,816,454 and $52,856,183 respectively. As shown in Figure 9, outpatient visits at urban hospitals accounted for 74.2% of all visits and 77.4% of all charges, while outpatient visits to rural hospitals were 25.8% of all visits and 22.6% of all charges. Please see Table 1 for more information.

Figure 9. Percent Distribution of ED Outpatient by Region and Charges: Utah, 2001



Patient Characteristics

There were more outpatient visits by women (52.4%) than men (47.6%) during 2001, as in previous years (Figure 10). The distribution of outpatient visits by age group, compared to 2001 Utah population by age group, is shown in Figure 11. Persons aged 1 to 4 years, 20 to 24 years, and 25 to 29 had disproportionately higher numbers of visits than those in other age groups. The very young and the very old had the most frequent outpatient visits in Utah hospital EDs in 2001. Persons aged less than one year and 85 years and over had the highest numbers of visits per 100 persons, 49.9 and 42.1, respectively. Please see Figure 11 and Table 10.

Figure 10. Percent Distribution of ED Outpatient by Gender: Utah, 2001

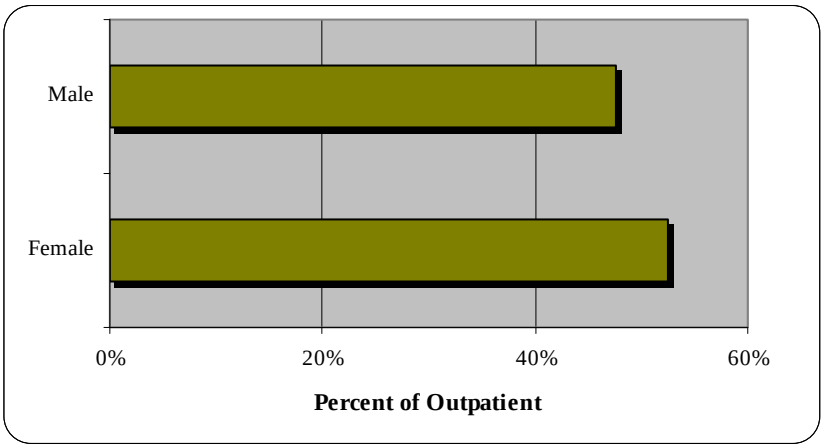
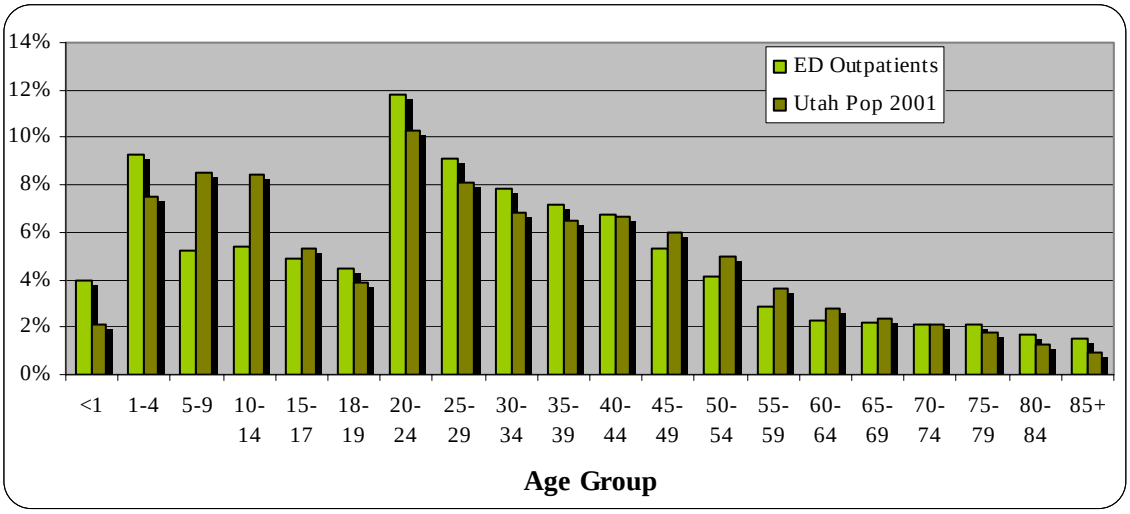


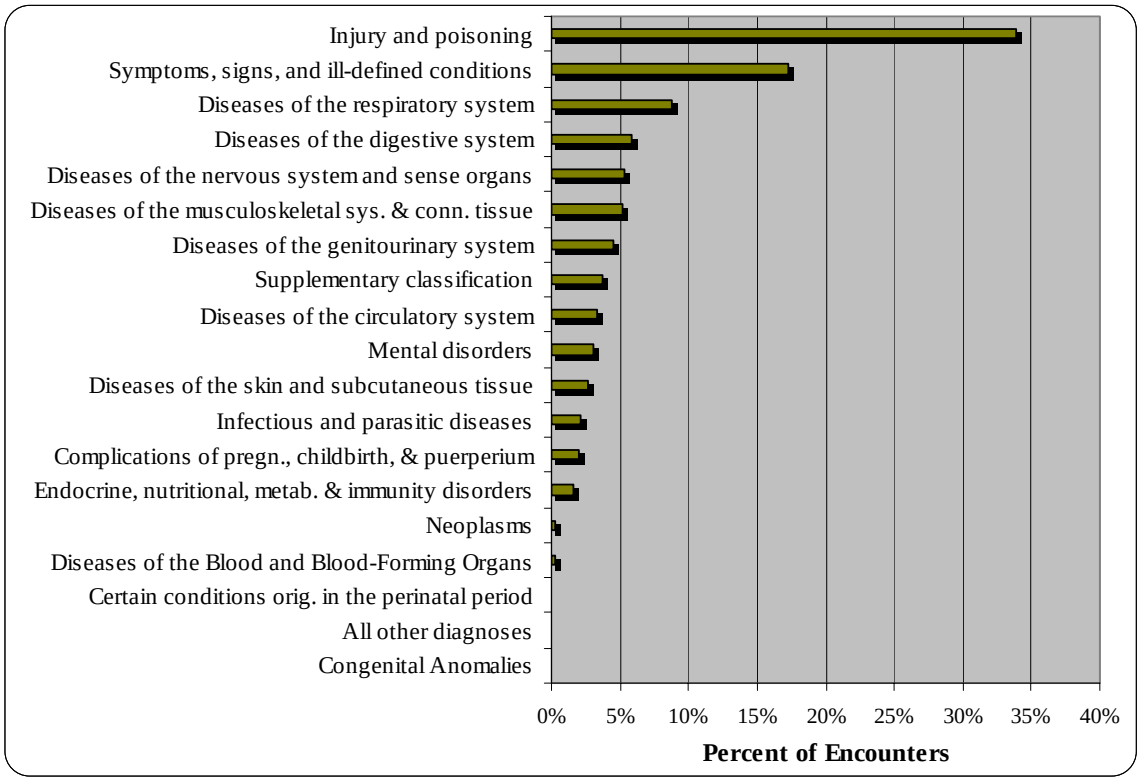
Figure 11. Percent Distribution of Outpatient by Patient Age Group Compared to Population Age Group: Utah, 2001



Outpatient Characteristics

Major disease category. The most common major disease category, based on ICD-9 coding, seen in ED outpatient visits in 2001 was injury and poisoning, which accounted for 35.9% of all outpatient visits and $74,317,746 in total charges. Symptoms, signs, and ill-defined conditions (18.4%) and diseases of the respiratory system (8.3%) were the second and third most common reasons for outpatient visits. Statewide average charges for outpatient visits were highest for diseases of the circulatory system ($786), neoplasms ($543), and diseases of the blood and blood-forming organs ($534). Please see Figure 12 and Table 11 for more information.

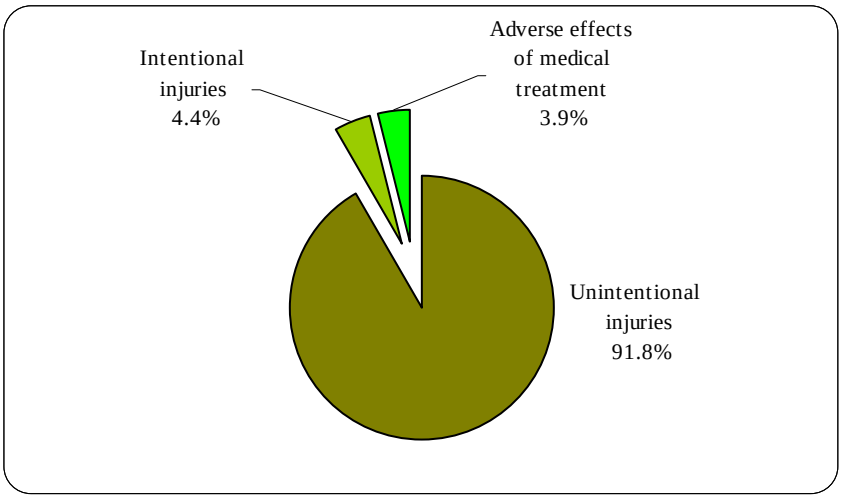
Figure 12. Percent Distribution of ED Outpatient by Major Disease Category: Utah, 2001



Causes of injury and poisoning. Using ICD-9-E codes, the 229,556 outpatient visits were classified as injury and poisoning, a 4.1% increase over the 220,511 outpatient visits for injury and poisoning in 2000. ED outpatient visits due to injury and poisoning accounted for 38.2% of all ED outpatient visits. Charges for ED outpatient visits due to injury and poisoning totaled $80,879,217, or 34.6% of charges for all outpatient visits.

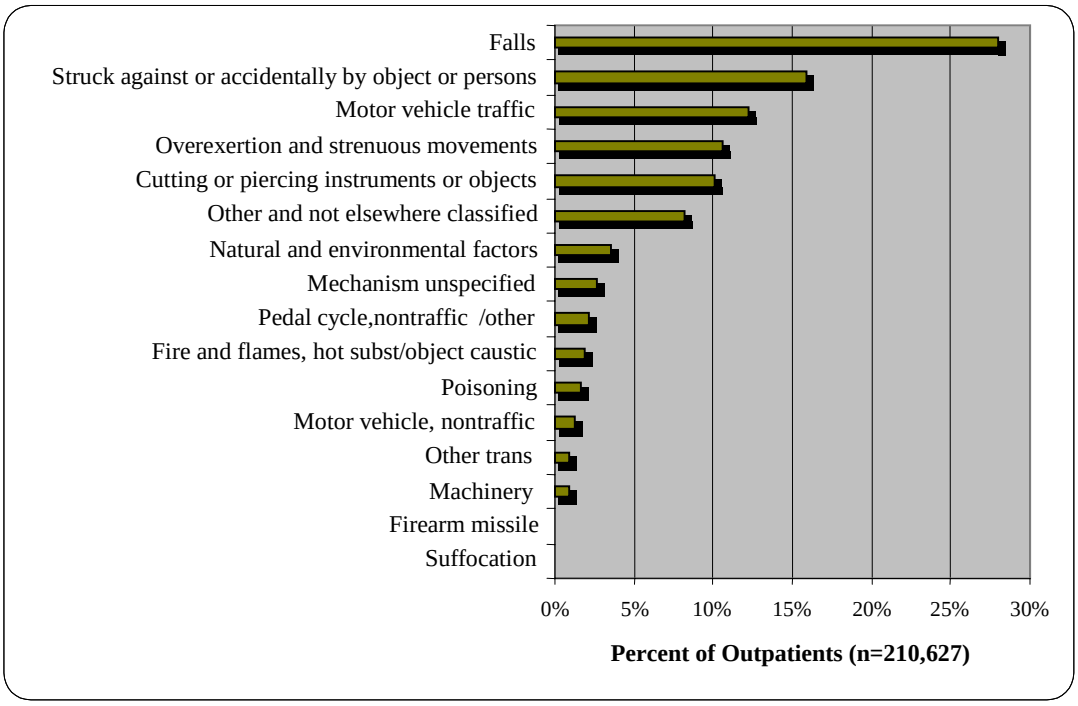
Unintentional injuries accounted for 91.8% of all outpatient visits due to injury and poisoning, while much smaller proportions were due to intentional injuries (4.4%) and adverse effects of medical treatment (3.9%). Charges for outpatient visits due to unintentional injuries were $72,071,106. For visits due to intentional injuries, total charges were $4,802,799, and for visits due to adverse effects of medical treatment the total charges were $3,482,272. The statewide average charge per outpatient visit for unintentional injuries, intentional injuries, and adverse effects of medical treatment were $302, $441, and $341 respectively. Please see Figure 13 and Table 12.

Figure 13. Percent Distribution of ED Outpatient by Intent and Mechanism of Injury: Utah, 2001



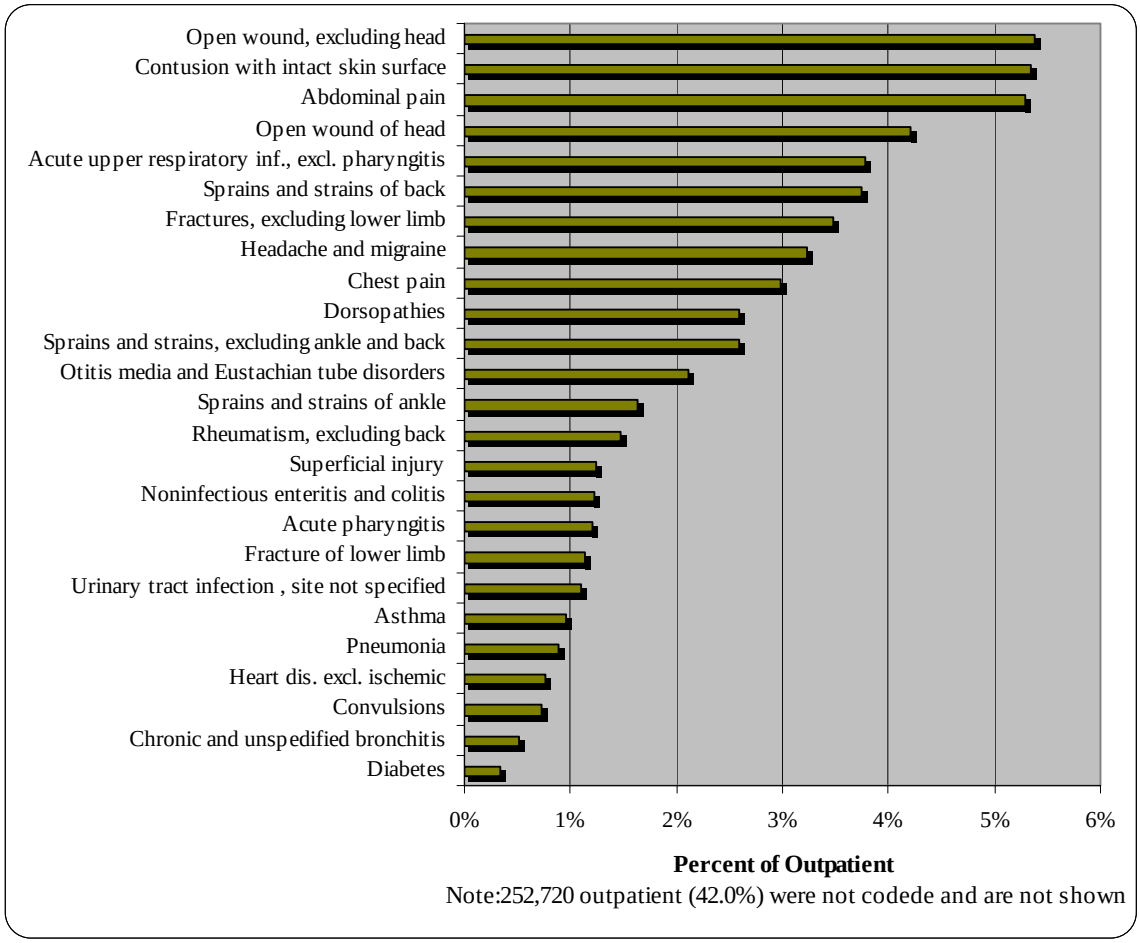
The most frequent causes of outpatient visits due to unintentional injury were falls (28.0%), striking against or struck accidentally by an object or persons (15.9%), and traffic-related motor vehicle injuries (12.2%). Please see Figure 14 and Table 12.

Figure 14. Percent Distribution of ED Outpatients by Unintentional Injury: Utah, 2001



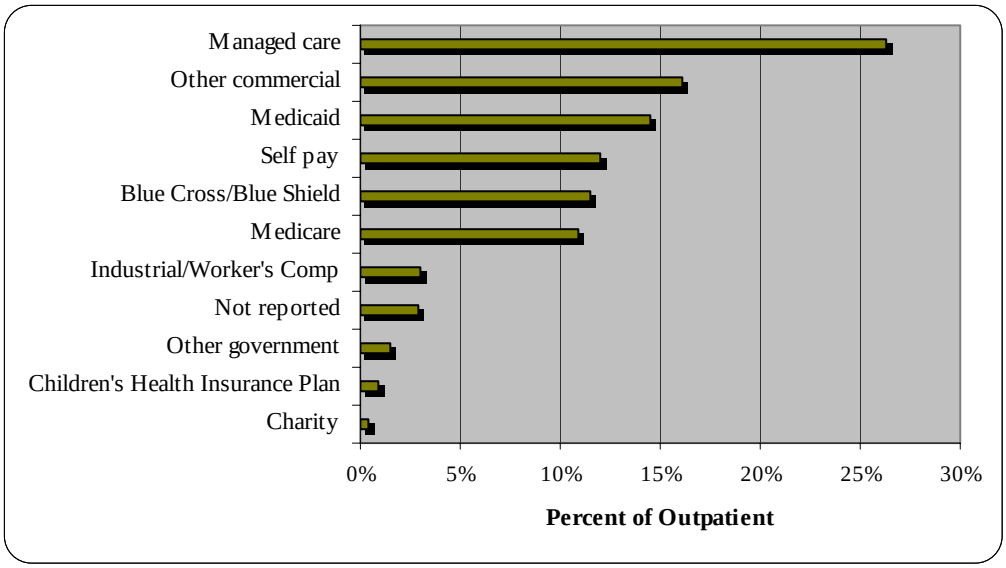
Principal diagnosis. The percent distribution of outpatient visits by principal diagnosis groups, based on ICD 9-CM codes, is shown in Figure 15 and Table 13. The top five principal diagnosis groups and related total charges were open wound, excluding head (5.4%, $8,631,485), contusion with intact skin surface (5.3%, $10,588,957), abdominal pain (5.3%, $21,189,089), open wound of head (4.2%, $7,694,600), and acute upper respiratory infection, excluding pharyngitis (3.8%, $4,949,532). In terms of statewide average cost per ED visits, the top five principal diagnosis groups were heart disease, excluding ischemic heart disease ($788), chest pain ($694), abdominal pain ($558), convulsions ($503), and pneumonia ($462).

Figure 15. Percent Distribution of ED Outpatient by Principal Diagnosis Group: Utah, 2001



Primary payers. The primary source of payment for ED outpatient visits in 2001 was managed care, which paid for 26.3% of all outpatient visits. Blue Cross/Blue Shield and other commercial insurers paid for 27.5% of outpatient visits, while Medicare, Medicaid, and other government sources were primary payers for 27.0% of visits. Please see Figure 16 and Table 10 for more information.

Figure 16 Percent Distribution of ED Outpatient by Primary Payer: Utah, 2001



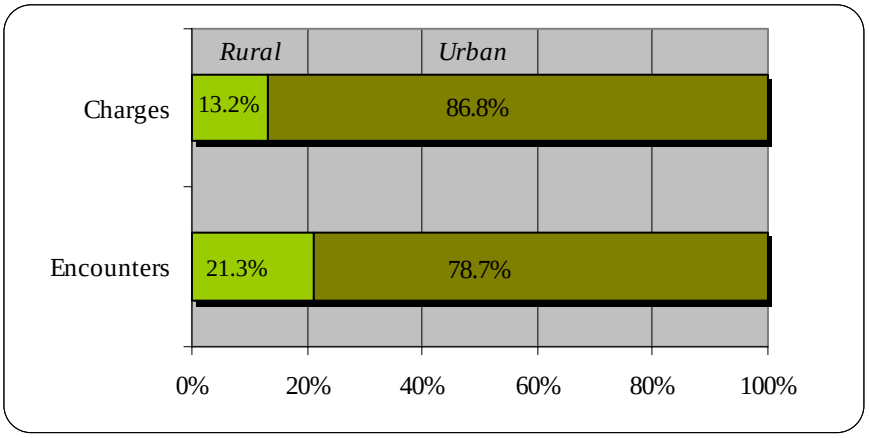
ED Inpatient

An ED Inpatient visit is one in which the patient is admitted as an inpatient to the same facility in which the ED encounter occurred, and the admission occurs immediately after the ED encounter. In 2001, there were 71,800 ED inpatient admissions, which represented 10.7% of all ED encounters that year and about 3.1 inpatient visits per 100 persons. Charges for inpatient admissions totaled $806,740,844, or 77.5% of charges for all ED encounters. Please see Table 1.

Geographic Region

During 2001, there were 15,266 ED inpatient admissions to rural hospitals, with charges of $106,819,185. In urban hospitals, there were 56,534 inpatient admissions, with $699,921,659 in charges. As shown in Figure 17, inpatient ED admissions to rural hospitals accounted for 21.3% of all ED inpatient admissions and 13.2% of all charges, while inpatient admissions to urban hospitals were 78.7% of inpatient admissions and 86.8% of charges for all inpatient admissions.

Figure 17. Percent Distribution of ED Inpatient by Region and Charges: Utah, 2001



Patient Characteristics

There were more inpatient admissions by women (53.2%) than men (46.8%) during 2001, as in previous years (Figure 18). The distribution of inpatient admissions by age group, compared to 2001 Utah population by age group, is shown in Figure 19. Persons aged 70 to 74, 75 to 79, and 80 to 84 over had disproportionately higher numbers of admissions than those in other age groups. Persons aged 75 to 79, 80 to 84, and 85 years and over had the highest numbers of admissions per 100 persons, 15.1, 19.6, and 28.6 respectively. Please see Figure 19 and Table 18.

Figure 18. Percent Distribution of ED Inpatient by Gender: Utah, 2001

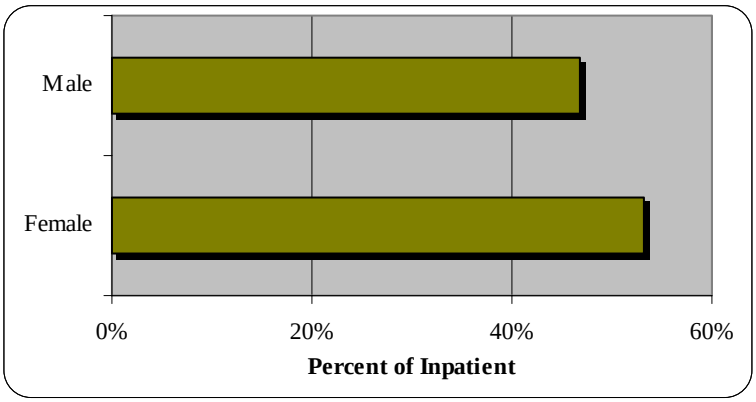
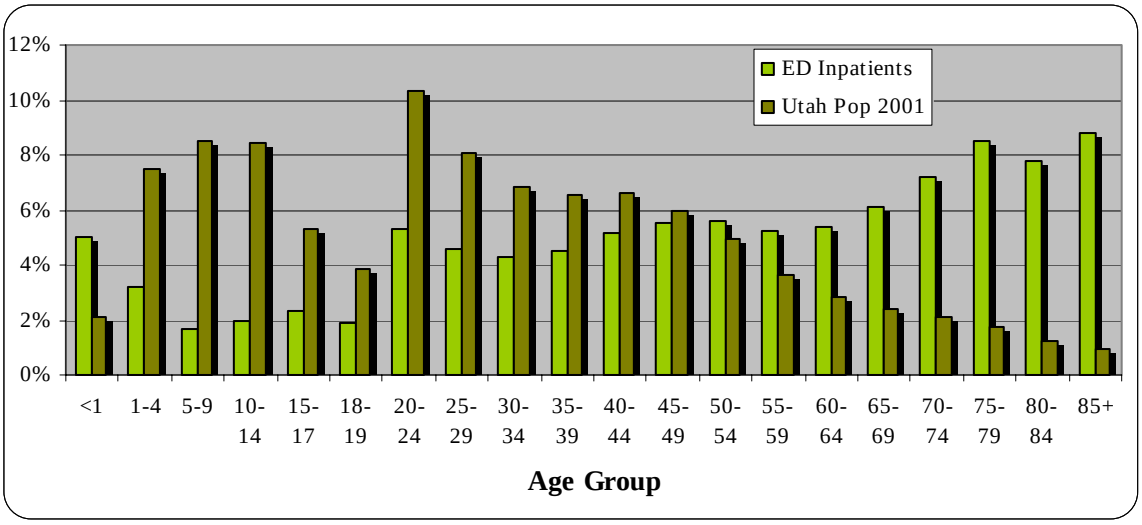


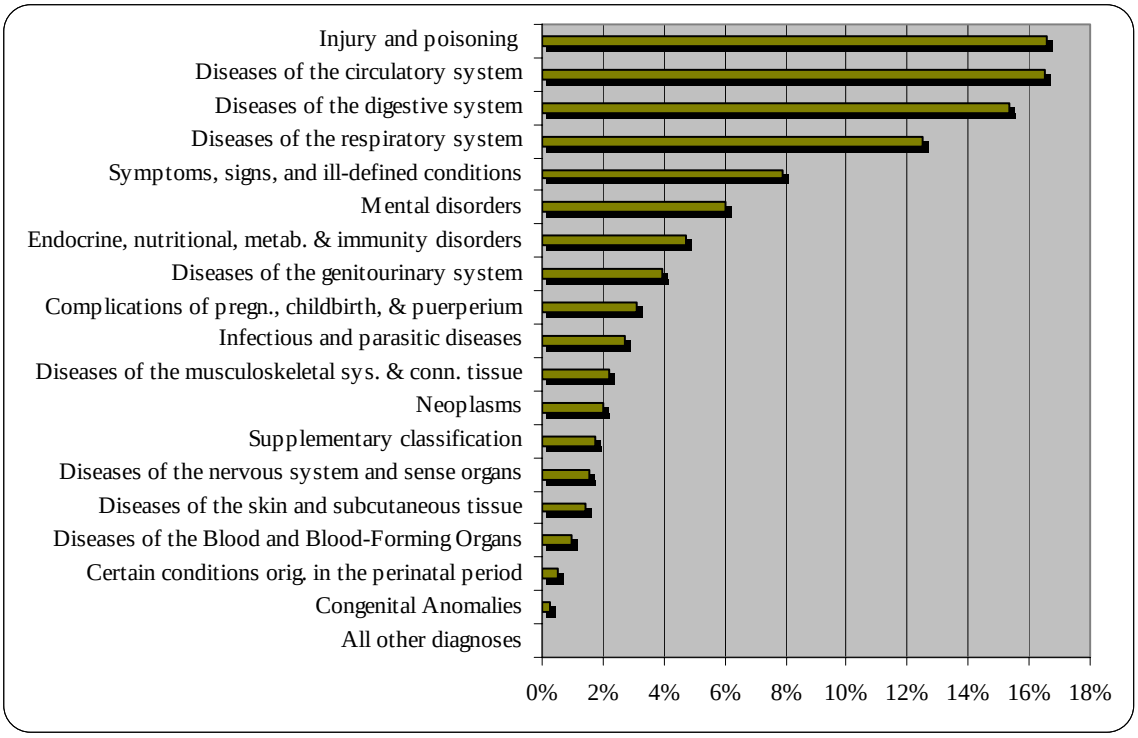
Figure 19. Percent Distribution of Inpatient by Patient Age Group Compared to Population Age Group: Utah, 2001



Inpatient Characteristics

Major disease category. In 2001, based on ICD-9 codes, the most common major disease category among ED inpatient admissions was injury and poisoning, which accounted for 16.6% of all inpatient admissions and $168,100,861 in total charges. The next three most frequent reasons for inpatient admissions were diseases of the circulatory system (16.5%), diseases of the digestive system (15.3%) ,and diseases of the respiratory system (12.5%). Together, the top four major diagnoses accounted for 61.0% of all inpatient ED admissions. Statewide average charges were highest for inpatient admission for diseases of neoplasms ($17,249), congenital anomalies ($16,051), and diseases of the circulatory system ($13,518). Please see Figure 20 and Table 19 for more information.

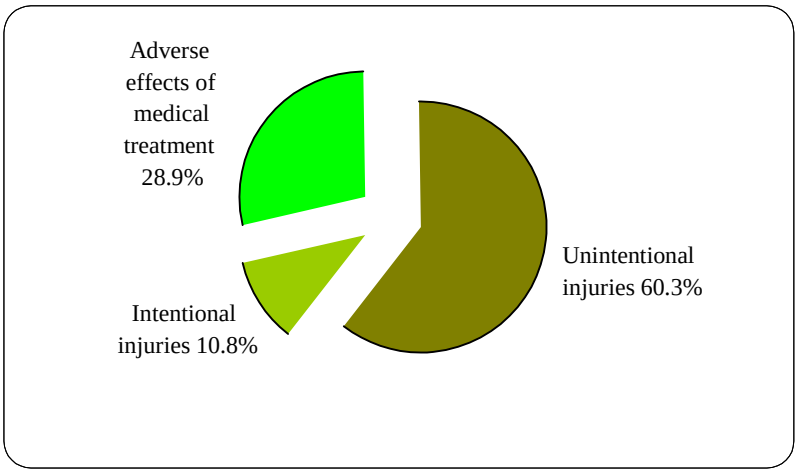
Figure 20. Percent Distribution of ED Inpatient by Major Disease Category: Utah, 2001



Causes of injury and poisoning. ICD-9-E codes were used to classify 15,831 inpatient admissions as injury and poisoning, a 9.2% increase over the 14,379 inpatient admissions for injury and poisoning in 2000. ED inpatient admissions due to injury and poisoning accounted for 22.0% of all ED inpatient admissions. Charges for these admissions totaled $184,396,000, which is 22.9% of charges for all inpatient admissions.

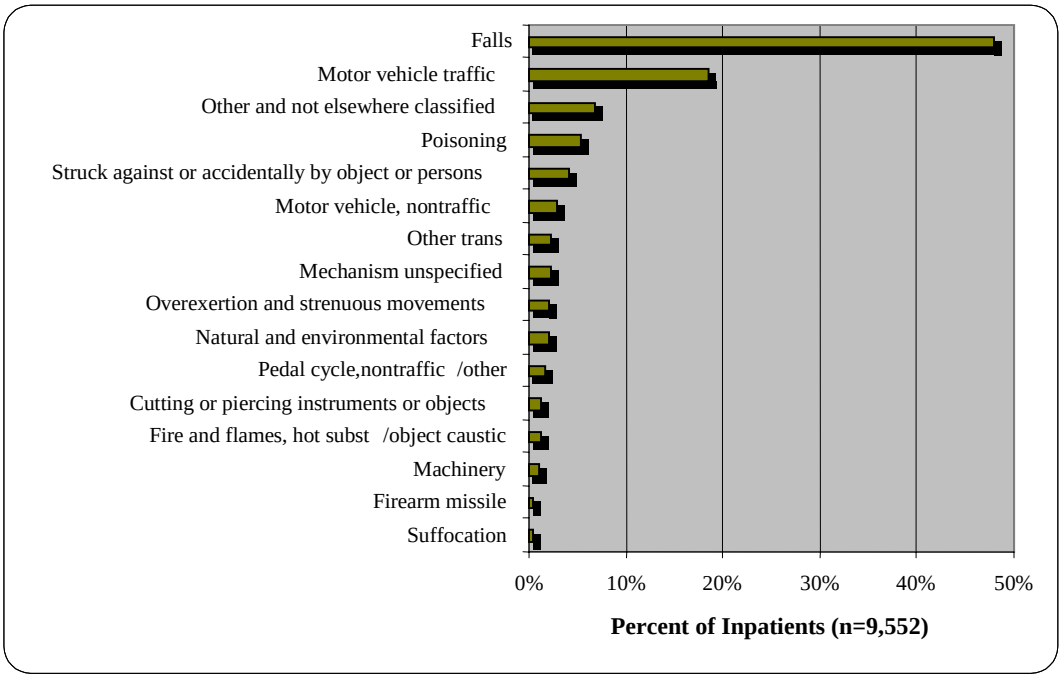
Unintentional injuries accounted for 60.3% of inpatient admissions due to injury and poisoning, while much smaller proportions were due to intentional injuries (10.8%) and adverse effects of medical treatment (28.9%). Charges for inpatient admissions due to unintentional injuries were $114,672,336. For admissions due to intentional injuries, total charges were $11,381,364, and for admissions due to adverse effects of medical treatment the total charges were $57,112,644. The statewide average charge was $11,226 for unintentional injuries, $6,829 for intentional injuries, and $11,343 for adverse effects of medical treatment. Please see Figure 21 and Table 20.

Figure 21. Percent Distribution of ED Inpatient by Intent and Mechanism of Injury: Utah, 2001



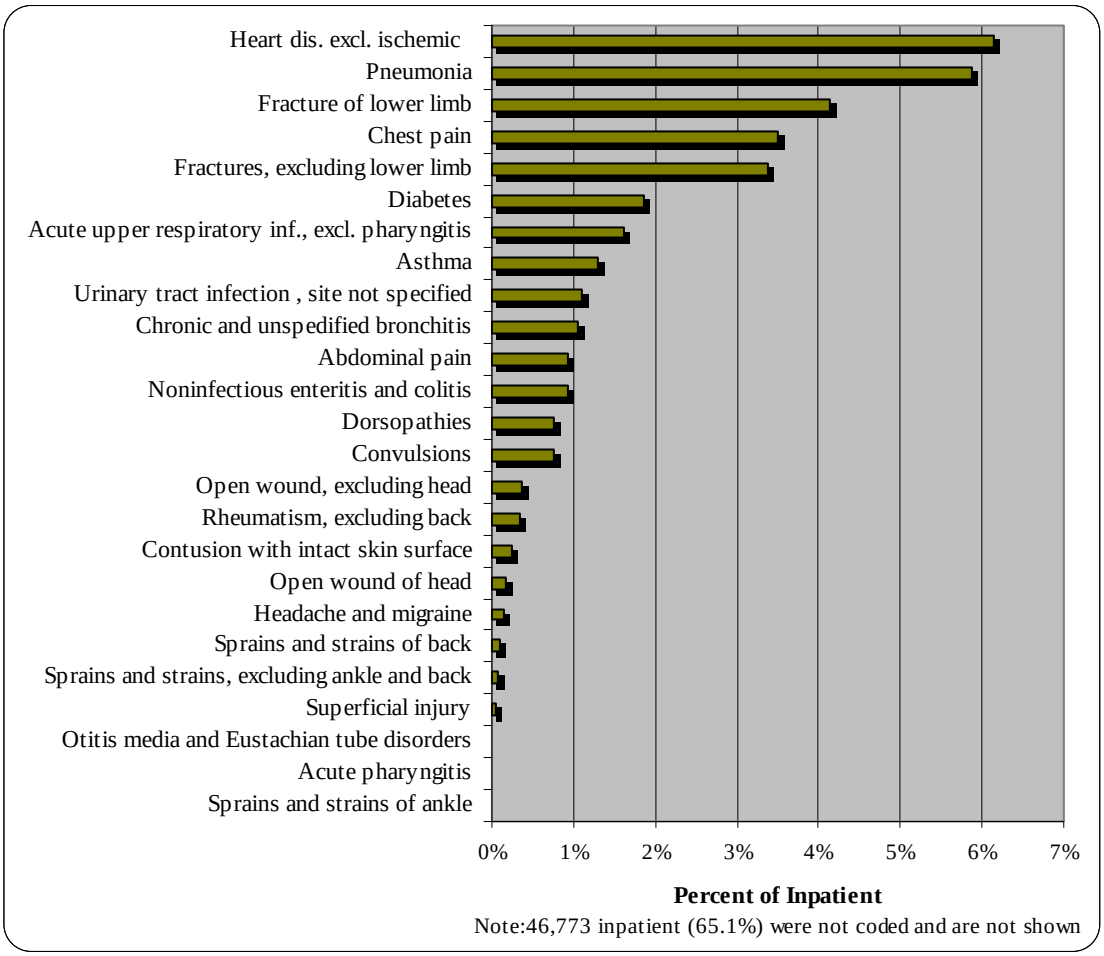
The most frequent causes of ED inpatient admissions due to injury and poisoning were falls (48.0%), motor vehicle traffic (18.5%), “other and not elsewhere classified” (6.9%). Please see Figure 22 and Table 20.

Figure 22. Percent Distribution of ED Inpatient by Unintentional of Injury: Utah, 2001



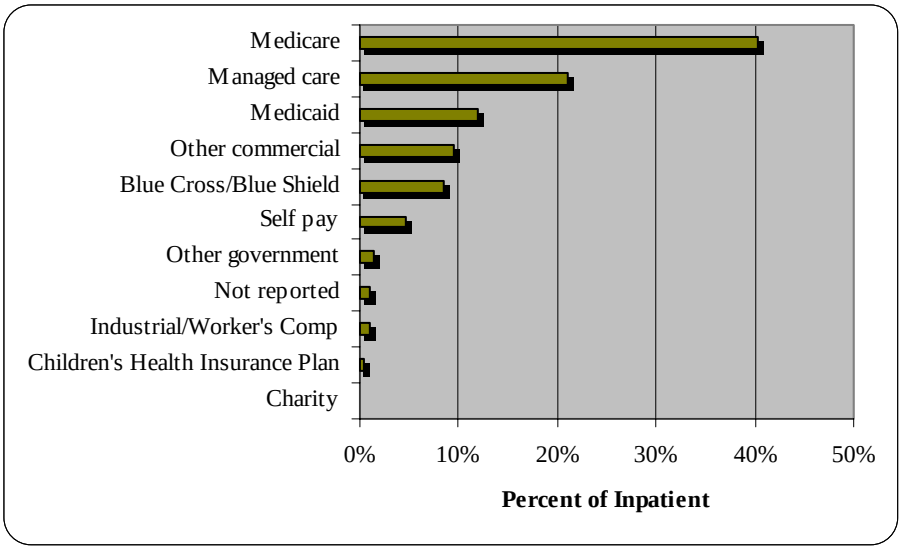
Principal diagnosis. Figure 23 presents the percent distribution of ED inpatient admissions by principal diagnosis groups, based on ICD-9-CM codes. The top five principal diagnosis groups and related total charges were heart disease, excluding ischemic (6.1%, $52,403,288), pneumonia (5.9%, $43,518,314), fracture of lower limb (4.1%, $41,029,856), chest pain (3.5%, $14,085,443), and fractures, excluding lower limb (3.4%, $38,172,429). In terms of statewide average cost per ED inpatient admission, the top five principal diagnosis groups were fractures excluding lower limb ($14,435), fracture of lower limb ($13,006), noninfectious enteritis and colitis ($11,114), heart disease excluding ischemic ($10,861),and dorsopathies ($10,785). Please see Table 21 for more information.

Figure 23. Percent Distribution of ED Inpatient by Principal Diagnosis Group: Utah, 2001



Primary payer. The primary source of payment for ED inpatient admissions in 2001 was Medicare, which paid for 40.3% of all inpatient admissions. Medicare, Medicaid, and other government sources combined were primary payers for 53.7% of inpatient admissions, while managed care (21.1%) and Blue Cross/Blue Shield and other commercial insurers (18.1%) were second and third among the top primary payers. Please see Table 18 for more information.

Figure 24. Percent Distribution of ED Inpatient by Primary Payer: Utah, 2001



Section III - Data

Data Collection

The Utah Emergency Medical Services Systems Act, 26-8a-203, Utah Code Annotated, authorizes the Bureau of Emergency Medical Services (EMS) to establish an emergency medical services data system. The data elements are defined by the Utah State Emergency Medical Services Committee (Committee), relating to the treatment and care of patients who use, or have used, the emergency medical services system (26-8a-203(2) and 26-8a-104(5)). In addition, 26-8a-203(3) states the following:

“Persons (defined as “any individual, firm, partnership, association, corporation, company, group of individuals acting together for a common purpose, agency or organization of any kind, public or private”) providing emergency medical services, shall provide to the department information for the emergency medical services information system established pursuant to Subsection 26-8a-203(3).”

Administrative Rule R426-7-3(I), mandates that all Utah licensed hospitals report information on ED patient encounters. The rule defines the data elements which hospitals are required to submit to EMS under statute and administrative rules specifically for the purpose of constructing a statewide Emergency Department Patient Data base (EDPD).

Data Submission

Patient data records are to be submitted to the Bureau as specified in the Submittal Manual. The data elements to be submitted are based on the encounter occurring in a calendar quarter.

System Edits

Data are validated through a process of automated editing and report verification. Each record is subjected to a series of edits for accuracy, consistency, completeness, and conformity with the definitions specified in the submittal manual.

Records failing the edit check are returned to the data supplier for correction and/or comment.

Privacy, Confidentiality, and Access

Privacy

The individual's right to privacy refers to a patient's capacity to control identifiable information about him/her that could be disclosed under certain conditions. Ensuring patient privacy is carefully considered in the management of BEMS data files

Public disclosure of individual hospital data is to be carefully guarded by use of calculated or aggregated values. Release of a hospital's identifiable data occur only if the hospital is allowed time to verify the accuracy of the information, submit corrections with supporting evidence, submit comments or alternate interpretations to the release; and BEMS has corrected any data records found in error.

Confidentiality

Care will be taken to ensure that access to the BEMS raw data files is by authorized personnel only. BEMS and the Utah Department of Health manage all EMS data files in compliance with protective policies and procedures. All personnel having any access to EMS data files are required to sign a "Confidentiality Pledge," which outlines their responsibilities and notifies them of the possible penalties for breach of the agreement.

Access

It is the policy of BEMS to support legitimate access to its ED data while protecting the patient and hospital right of privacy. This policy governs the administration of confidential data in the custody of BEMS. Aggregated values are released in designated BEMS Resource Documents or User Friendly Reports.

Section IV - Technical Notes & Limitations

Sources of Hospital Variation in Volume and Outcome of ED Encounters

Users of this report must remember that several factors such as volume of patient encounters, coding inconsistencies, and severity of patient illness can influence comparisons between hospitals. When interpreting the information shown in this report, the reader is advised to keep in mind the following:

Volume – If a hospital released only a few types of certain cases, comparing data with other hospitals would not be especially meaningful because a small number of cases is not sufficient to establish a pattern of treatment. The reader must exercise caution when interpreting measures shown in the Report that were based on less than five releases.

Coding – The inter-hospital data variations may be a reflection of the differences in coding practices and quality of data.

The ED Submittal Manual provides data element definitions and standards to ensure that all hospitals will report similar data. Additionally, each hospital is provided with a 35-day review period to validate the data against its hospital records. Despite the validation process, data quality is still a concern, but it is expected to improve over time as hospitals become accustomed to reporting data for public dissemination. Any comparative analysis or decision-making based on this data should take into account issues of data quality.

Severity of Illness – Patient encounters to EDs for the same treatment and conditions often vary in the severity of illness. Factors such as age, gender, and secondary illnesses account for differences in degree. Treating severely ill patients is the most resource-intensive and expensive for any hospital. For instance, patients who are severely ill may need to be admitted to intensive care units; require high-technology equipment; or may need to stay longer in hospitals than less ill patients.

Some hospitals, especially regional referral centers such as Primary Children's Medical Center and LDS Hospital, treat more acutely ill patients because of the specialized care available at the facility. The University of Utah Hospital, a regional referral center as well as a major teaching hospital, treats more patients with complex medical conditions than other hospitals. Because of services offered and the condition of patients served, charges for patient care at these hospitals may be higher than other hospitals.

Rural hospitals often admit a mix of patients that may be chronically ill, uninsured, or elderly. The elderly are often more severely ill because of chronic and multiple health problems than their counterparts.

Size – Larger hospitals typically provide a more extensive array of services that are more sophisticated and resource-intensive than smaller rural hospitals, e.g., specialized intensive care units.

Location – Urban compared with rural hospitals have higher costs and revenues for a variety of reasons. Cost of labor may be among the most important reasons that urban hospitals incur higher costs. Hospitals in urban labor markets must typically pay more to employ nurses, administrators, hospital-based physicians, and nearly all other hospital personnel.

Teaching Status – Teaching hospitals are those that provide medical education, primarily graduate medical education. The most prominent differences between teaching and non-teaching hospitals occur as a result of the contemporaneous provision of teaching and patient care.

The second major difference between teaching and non-teaching facilities is the broader and more complex scope of services offered by teaching hospitals.

Strategies to Improve Comparability

Outlier Cases – Some patients have exceptionally low or high total facility charges. Hospital charges can be affected by just a few unusually expensive (or inexpensive) cases. These high or low values could be a result of coding or data submittal errors, particularly in total charges. Other reasons for exceptionally low charges could be due to death or transfer to another facility. Exceptionally high charges could be due to a catastrophic condition. Whatever the reason, these values (referred to as "outliers") distort the averages and were excluded from calculations. The high total facility charge outliers are defined in this and succeeding reports as values above 2.5 standard deviations from the mean. Mean and standard deviations are All Patient Refined Diagnosis Related Group (APR-DRG) specific and are calculated on a statewide basis. The low outliers were defined as a non-newborn or non-normal delivery encounters with less than a $300 charge. However, the calculations in this report do not exclude low outliers. A preliminary analysis showed that of the encounters meeting this definition, a high proportion are in the DRG "Other factors influencing health status," for which it was difficult to determine whether they were true outliers.

Hospital Peer Groups – Comparing summary outcome measures (length of stay, total charges, readmission rates, and mortality rates) among hospitals has always been controversial because of the difficulty of defining what makes hospitals "comparable." As discussed previously, summary outcome measures vary among hospitals depending on various factors such as location, bed size, ownership, affiliation, and teaching status. If all these factors were to be considered in defining peer groups, each hospital might end up in a group by itself.

It was determined that this report would contain summary statistics for a hospital's peer group as well as for the hospital and the state. The next issue was the basis for the grouping, which is discussed below.

Among various factors affecting a hospital's average charges, location and case-mix indicators play important roles in determining the complexity of patient treatment in the hospital. Therefore, the basis for the 2001 hospital grouping is location (urban/rural) and the all patient case-mix index, except for psychiatric and substance abuse hospitals and non-comparable hospitals.

In order to be comparable with other reports on hospital utilization, the hospitals are assigned to peer groups according to 1996 UHDDB all patient case-mix index (CMI), in which the peer group classification was derived using 1996 hospital discharge data. The 2000 UHDDB all patient CMI is shown below.

Hospital Peer Groups and Case-mix Indexes

Group 1: Acute Care, Urban, High CMI

LDS Hospital	1.4709
University of Utah Hospital & Clinics	1.5844

Group 2: Acute Care, Urban, Upper Medium CMI

St. Mark's Hospital	1.1057
McKay-Dee Hospital	1.0497
Salt Lake Regional Medical Center	0.8684
Utah Valley Medical Center	1.1006

Group 3: Acute Care, Urban, Lower Medium CMI

Cottonwood Hospital Medical Center	0.7626
Davis Hospital and Medical Center	0.7179
Lakeview Hospital	0.9053
Mountain View Hospital	0.8004
Ogden Regional Medical Center	0.8062
Pioneer Valley Hospital	0.8079

Group 4: Acute Care, Urban, Low CMI

Alta View Hospital	0.5721
American Fork Hospital	0.4644
Timpanogos Regional Hospital	0.6528
Jordan Valley Hospital	0.4878
Orem Community Hospital	0.3085

Group 5: Acute Care, Rural, High CMI

Ashley Valley Medical Center	0.6583
Brigham City Community Hospital	0.6122
Castleview Hospital	0.9649
Dixie Medical Center	0.9190
Logan Regional Hospital	0.6477
Valley View Medical Center	0.6764

Group 6: Acute Care, Rural, Low CMI

Allen Memorial Hospital	0.6236
Bear River Valley Hospital	0.5578
Beaver Valley Hospital	0.5578
Central Valley Medical Center	0.6200
Delta Community Medical Center	0.5333
Fillmore Community Medical Center	0.5287
Garfield Memorial Hospital	0.7128
Gunnison Valley Hospital	0.4812
Kane County Hospital	0.5507
Milford Valley Memorial Hospital	0.4802
San Juan County Hospital	0.5325
Sanpete Valley Hospital	0.5048
Sevier Valley Hospital	0.6347
Tooele Valley Regional Medical Center	0.7335
Uintah Basin Medical Center	0.5460

Special Hospitals (not comparable)

Primary Children's Medical Center	1.7884

Limitations

The Report shows the total billed ED charges. Billed charges are to be used as one indicator of hospital ED performances. All patients, or insurance plans, do not pay the same amount for similar treatments, supplies, services, and procedures even though they may be billed the same amount. Hospitals offer a variety of contracts, many with discount arrangements based on volume.

The Report can be used to compare broad measures of ED utilization for all hospitals, but more detailed data are needed to look at specific performance comparisons between hospitals. The Report addresses ED utilization issues, but does not directly measure the quality of medical care. This information serves as an important step toward targeting prevention programs and educating Utahns about their health.

Last, but certainly not least, we are eagerly awaiting your comments and constructive critique. Your constructive criticism will help shape a better report in the future. If you feel that the Report justifies kudos, they will be gratefully accepted. Please be specific in your comments, criticisms, and kudos.

Additional ED Data Resources

ED-AR 2001 Tables in Electronic Form - The tables included in this report can be made available in electronic form upon request. Patient-level data are also available in electronic form. (See Appendix B.)

Future Reports - The ED-AR 2001 contains a wealth of data and will serve as the basis for several consumer-friendly reports. Standard documents will be published and distributed to a wide range of audiences.

Electronic Data - BEMS supports legitimate access to its emergency department database while protecting the patient and hospital right of privacy.

Public Data Sets (PDS) - are available with minimal control. Different data files are designed to provide general health care data to a wide spectrum of users.

User Defined Data Set (UDDS) - is available through the “Request for Data Release” process. Researchers may request, in writing, a research-oriented database for *bona fide* research and statistical purposes. BEMS will forward these requests for review and approval to the Department of Health Institutional Review Board.

Special Data Requests - will be reviewed jointly by OHCS and BEMS

Section V – Appendices

Appendix A - Table Description

There are twenty five tables contained in the Report, the descriptions for which are included below. The groupings for the tables the Report are derived from the hospital geographic location, patient demographic background, or from the principal diagnosis coded by the hospital in the patient record. Each patient's ED billing record contains patient demographics, clinical coding classifications based on the International Classification of Diseases, 9th Revision Clinical Modification (ICD9-CM), payer, and utilization data for each visit. Categories shown in this report were based on ICD9-CM coding ranges defined in the National Hospital Ambulatory Medical Care Survey: 2001 Emergency Department Summary developed by the National Center for Health Statistics.

The tables present the distribution, composition, and outcome measures of all ED encounters, ED Outpatient visits, and ED inpatient admission, by selected characteristics. The information is presented by hospital and arranged in sequence according to peer groups. Where appropriate, comparative statistics are shown between the hospital peer group and the entire state totals.

Table 1	Presents the state level volume of ED encounters, outpatients and inpatients with reported total ED charges, by hospital and geographic region.
Table 2	Presents the state level ED encounter profile: gender, age, type of admission, discharge status, and primary payer.
Table 3	Presents the state level volume of ED encounters, average and total ED charges, by major disease category and ICD-9-CM code range.
Table 4	Presents the state level ED encounters, average and total ED charges, by the categories of intent and mechanism of injury or poisoning.
Table 5	Presents the state level ED encounters, average and total ED charges, by principal diagnosis group and ICD-9-CM codes for selected categories.
Table 6	Presents the individual hospital level ED encounter profile: gender, age, type of admission, discharge status, and primary payer.

Table 7	Presents the individual hospital level volume of ED encounters and total ED charges, by major disease category and ICD-9-CM code range.
Table 8	Presents the individual hospital level volume of ED encounters, average, and total ED charges, by intent and mechanism of injury categories (E-codes, or external causes of injury codes) as listed in the ICD-9-CM and type of injury categories (ICD-9-CM code range 800-989), grouped to highlight the interaction between intent of the injury and the mechanism that produced the injury.
Table 9	Presents the individual hospital level ED encounter and average ED charges, by principal diagnosis grouping and ICD-9-CM codes for selected categories.
Table 10	Presents the state level ED outpatient profile: gender, age, type of admission, discharge status, and primary payer.
Table 11	Presents the state level volume of ED outpatient visits, average and total ED charges, by major disease category and ICD-9-CM code range.
Table 12	Presents the state level ED outpatient visits, average and total ED charges, by the categories of intent and mechanism of injury or poisoning.
Table 13	Presents the state level ED outpatient visits, average and total ED charges, by principal diagnosis group and ICD-9-CM codes for selected categories.
Table 14	Presents the individual hospital level ED outpatient profile: gender, age, and type of admission, discharge status, and primary payer.
Table 15	Presents the individual hospital level volume of ED outpatient visits and total ED charges, by major disease category and ICD-9-CM code range.
Table 16	Presents the individual hospital level volume of ED outpatient visits, average, and total ED charges by intent and mechanism of injury categories (E-codes, or external causes of injury codes) as listed in the ICD-9-CM and type of injury categories (ICD-9-CM code range 800-989), grouped to highlight the interaction between intent of the injury and the mechanism that produced the injury.

Table 17	Presents the individual hospital level ED outpatient visits and average ED charges, by principal diagnosis grouping and ICD-9-CM codes for selected categories.
Table 18	Presents the state level ED inpatient profile: gender, age, discharge status, primary payer and local health district.
Table 19	Presents the state level volume of ED inpatient admissions, average and total ED charges, by major disease category and ICD-9-CM code range.
Table 20	Presents the state level ED inpatient volume, average and total ED charges, by the general categories of intent and mechanism of injury or poisoning.
Table 21	Presents the state level ED inpatient volume, average and total ED charges, by principal diagnosis group and ICD-9-CM codes for selected categories.
Table 22	Presents the individual hospital level ED inpatient profile: gender, age, type of admission, discharge status, and primary payer.
Table 23	Presents the individual hospital level volume of ED inpatients admissions and total ED charges, by major disease category and ICD-9-CM code range.
Table 24	Presents the individual hospital level volume of ED inpatient admissions, average, and total ED charges, by intent and mechanism of injury categories (E-codes or external causes of injury codes) as listed in the ICD-9-CM and type of injury categories (ICD-9-CM code range 800-989), grouped to highlight the interaction between intent of the injury and the mechanism that produced the injury.
Table 25	Presents the individual hospital level ED inpatient volume and average ED charges, by principal diagnosis grouping and ICD-9-CM codes for selected categories.

Description of Table Entries
Using healthcare data to affect decision-making requires a commitment on the part of users to understand the complex nature of healthcare. Decision-making is not simple and should not be based on a single indicator. The following will assist users in interpreting the data contained in this report.

Encounters/Visits – Number of ED encounters that occurred from January 1, 2001 to December 31, 2001. These include patients with out-of-state residencies.

Total Charges – Sum of all ED facility charges included in the billing form, excluding professional fees. **Total charges are different from cost of treatment or payment received by the hospital.**

Average Charges – Sum of total charges divided by number of releases. In the calculation of the average charges, outliers that were above 2.5 standard deviations were excluded from the total charges. The arithmetic mean or average lends itself to further mathematical manipulation, i.e., by multiplying it with a projected number of releases to predict future resource use. Thus, it was chosen over other measures of central tendency, such as the median or mode, neither of which has this statistical property.

Major Disease Categories (MDC) – Mutually exclusive principal diagnosis categories. The diagnoses in each MDC correspond to a single organ system or etiology and, in general, are associated with a particular medical specialty.

Age – Derived from date of birth and the date of encounter.

Appendix B - Electronic Resource Documents

Public Data Sets (PDS) are available with minimal control. Different data files are designed to provide general healthcare data to a wide spectrum of users. Although the data is at the patient level, considerable care has been taken to ensure that no individual patient could be identified from the data. The data elements included in the public use data files are:

1 Provider Identifier (Hospital)
2 Patient's age (in 5-yr. group)
3 Patient's gender
4 Source of admission
5 Total hours stay
6 Patient's release status
7 Patient's postal zip code
8 Patient's residential county
9 Patient 's migrant status
10 Patient's marital status
11 Patient's race & ethnicity
12 Principal diagnosis
13 Secondary diagnosis 1
14 Secondary diagnosis 2
15 Secondary diagnosis 3
16 Secondary diagnosis 4
17 Principal procedure
18 Secondary procedure 1
19 Secondary procedure 2
20 E CODE
21 Admission Hour
22 Total charge
23 ED Charge
24 Primary payer category
25 Secondary payer category
26 Tertiary payer category
27 Patient's relationship to insured
28 Charge Outlier
29 Length of Stay Outlier
30 Release Quarter
31 Record identifier
32 Secondary diagnosis code 5
33 Secondary diagnosis code 6
34 Secondary diagnosis code 7
35 Secondary diagnosis code 8
36 Secondary procedure code 3
37 Secondary procedure code 4
38 Secondary procedure code 5
39 MDC
40 Principle Diagnostic Category
41 Encounter Type

To get complete descriptions of data elements included in the public user data files, point your browser to www.health.utah.gov/ems/ or www.health.utah.gov/hda . You can also request a copy of the description of PDS data elements by writing or sending an email to BEMS.

User Defined Data Set (UDDS) is available through the “Request for Data Release” process. BEMS supports legitimate access to its ED database while protecting the patient and hospital right of privacy. To ensure patient privacy, all requests for data release not in aggregated form shall be submitted in letter form to the EMS director specifically stating the purposes for which the data is requested. Researchers may request, in writing, a research-oriented database for bona fide research and statistical purposes. BEMS will forward these requests for review and approval to the Department of Health Institutional Review Board.

Please send requests for data to:

Don Wood, M.D.
Bureau of Emergency Medical Services
Utah Department of Health
288 North 1460 West
PO Box 142004
Salt Lake City, UT 84114-2004
(801) 538-6287
email: donwood@utah.gov

or to:

John Morgan
Office of Health Care Statistics
Utah Department of Health
288 North 1460 West
PO Box 144004
Salt Lake City, UT 84114-4004
(801) 538-6700
email: johnmorgan@utah.gov

Appendix C - Hospital Characteristics: 2001

ID	HOSPITAL NAME	OWNER*	AFFILIATION	COUNTY	CITY	URBAN/ RURAL	TEACH	BEDS
111	Allen Memorial Hospital	G	Rural Health Management	Grand	Moab	R	N	38
118	Alta View Hospital	N	IHC	Salt Lake	Sandy	U	N	70
136	American Fork Hospital	N	IHC	Utah	American Fork	U	N	72
134	Ashley Valley Medical Center	I	LifePoint Hospitals	Uintah	Vernal	R	N	39
104	Bear River Valley Hospital	N	IHC	Box Elder	Tremonton	R	N	20
101	Beaver Valley Hospital	G	Freestanding	Beaver	Beaver	R	N	36
103	Brigham City Community Hospital	I	MountainStar Healthcare	Box Elder	Brigham City	R	N	49
106	Castleview Hospital	I	LifePoint Hospitals	Carbon	Price	R	N	74
113	Central Valley Medical Center	N	Rural Health Management	Juab	Nephi	R	N	31
119	Cottonwood Hospital Medical Center	N	IHC	Salt Lake	Murray	U	N	213
108	Davis Hospital and Medical Center	I	IASIS Health Care	Davis	Layton	U	N	126
116	Delta Community Medical Center	N	IHC	Millard	Delta	R	N	20
140	Dixie Regional Medical Center	N	IHC	Washington	St. George	R	N	137
115	Fillmore Community Medical Center	N	IHC	Millard	Fillmore	R	N	20
110	Garfield Memorial Hospital	N	IHC	Garfield	Panguitch	R	N	44
129	Gunnison Valley Hospital	G	Rural Health Management	Sanpete	Gunnison	R	N	21
139	Heber Valley Medical Center	N	IHC	Wasatch	Heber	R	N	16
117	Jordan Valley Hospital	I	IASIS Health Care	Salt Lake	West Jordan	U	N	50
114	Kane County Hospital	G	Freestanding	Kane	Kanab	R	N	33
107	Lakeview Hospital	I	MountainStar Healthcare	Davis	Bountiful	U	N	128
121	LDS Hospital	N	IHC	Salt Lake	Salt Lake City	U	Y	520
105	Logan Regional Hospital	N	IHC	Cache	Logan	R	N	148
141	McKay-Dee Hospital	N	IHC	Weber	Ogden	U	Y	428
102	Milford Valley Memorial Hospital	G	Rural Health Management	Beaver	Milford	R	N	34
137	Mountain View Hospital	I	MountainStar Healthcare	Utah	Payson	U	N	126
142	Ogden Regional Medical Center	I	MountainStar Healthcare	Weber	Ogden	U	N	227

* Owner Category: G=Government, N=Not for profit, I=Investor-Owned

ID	HOSPITAL NAME	OWNER*	AFFILIATION	COUNTY	CITY	URBAN/ RURAL	TEACH	BEDS
135	Orem Community Hospital	N	IHC	Utah	Orem	U	N	20
126	Pioneer Valley Hospital	I	IASIS Health Care	Salt Lake	West Valley	U	Y	139
122	Primary Children's Medical Center	N	IHC	Salt Lake	Salt Lake City	U	N	232
143	Rocky Mountain Hospital	I	IASIS Health Care	Salt Lake	Salt Lake City	U	N	125
120	Salt Lake Regional Medical Center	I	IASIS Health Care	Salt Lake	Salt Lake City	U	Y	200
128	San Juan Hospital	G	Managed	San Juan	Monticello	R	N	36
130	Sanpete Valley Hospital	N	IHC	Sanpete	Mt. Pleasant	R	N	20
132	Sevier Valley Hospital	N	IHC	Sevier	Richfield	R	N	42
124	St. Mark's Hospital	I	MountainStar Healthcare	Salt Lake	Salt Lake City	U	Y	276
144	Timpanogos Regional Hospital	I	MountainStar Healthcare	Utah	Orem	U	N	47
133	Tooele Valley Regional Medical Center	G	Community Health Sys	Tooele	Tooele	R	N	38
109	Uintah Basin Medical Center	G	Freestanding	Duchesne	Roosevelt	R	N	42
125	University of Utah Hospital	G	Freestanding	Salt Lake	Salt Lake City	U	Y	425
138	Utah Valley Regional Medical Center	N	IHC	Utah	Provo	U	N	395
112	Valley View Medical Center	N	IHC	Iron	Cedar City	R	N	48

*Owner Category: G=Government, N=Not for profit, I=Investor-Owned